ASPECTS OF ECOLOGY OF OWENA RESERVOIRS: IMPLICATION ON FISH PRODUCTION

O.O. OKE

Department of Biology
Adeyemi College of Education
Ondo, Ondo State

INTRODUCTION

Owena reservoir is a major source of domestic water supply to the people of Ondo and Akure townships. It is formed as a result of damming the Owena river, a major river in Ondo State.

The reservoir was constructed in 1966 and is located at Kilometre 25. (Latitude 7.03N Longitude 5.03E) along Ondo-Akure Road in Idanre Ifedore Local Government of Ondo State. It has a surface area of about 15km^2 and can be regarded as one of the reservoirs in the country based on classification by Ita *et al* (1985).

The bottom topography is irregular but uniform in texture. The bottom sediment was sandy loam with large quantities of decaying leaves, plants and organic debris.

The percentage of sand particles ranged from 6.4 to 7.6% and clay particles ranged from 11 to 21% and siltation of the soil increased from 11 to 22%.

The organic matter content of the bottom sediments ranged from 3.71 to 34.49g/100g.

The bottom sediments was moderately acidic ranging from 4.40 to 5.40.

The exchangeable cations-calcium and magnesium ions were relatively high ranging from 13.03 to 22.80 mg/100g sodium and potassium ions were relatively, low ranging from 0.78 to 1.30mg/100g. The anions had high values. PO_4 23.29 - 33.71ppm. NO_3 10.0 - 40.0 ppm SO_4^{2-} 9.15 - 14.58 mg/g.

Physico-chemical characteristics of the water

The reservoir was chemically and thermally stratified and eutrophication occurred during the period of study.

Partial mixing of the water was observed during the rains which also caused the flooding of the reservoir in July and September 1988. The concentration of major ions in the water. showed distinct peculiarities. The cations (Na^+,K^+,Ca^H,Ca^2,Mg^{++},) SO_4^{2-} were relatively low.

The water had high dissolved oxygen, it was acidic and also had low values of alkalinity conductivity, and total dissolved solids.

Plankton

During the study 61 plankton taxa were identified, 21 belonged to chlorophyta, with *Gonatozygon* sp. *Pleurotaenium Richeterella* sp., *Botigyoceoceus* and *Closterium* sp as main species.

Chrysophyta, *Synedra nitzschia* sp. Cynedra :- *Cynanophyta*; *Oseillatoria* sp. Rotatoria:- Seven taxa *Copelopagis* sp, *Keratella* sp *Chromogaster* sp. *Protozoa* eleven taxa- *volvox* sp. *Mayorella* sp. Crustacea, seven taxa *Pseudodiaptomus*, sp *Bosmine Cypridopsis* sp.

Insecta four taxa *Povilla adusta.*

Benthos

The macrobenthos obtained from artificial and natural substrates comprised mainly two phyla viz mollusca represented by *Lymnaea*, sp *Bulinus* sp, *Biomphalaria* sp, *Melanoides* sp and *Aspatharia sinuata* Arthropoda represented by *Povilla adusta* and *Chaoborus* sp

Implication on Fish Production

The values of the physico-chemical parameters are comparable to those of other fresh water bodies in West Africa and especially Nigeria (Visser, 1974).

Using the criteria proposed by Environmental Protection Agency (1976). The mean values of most of the parameters are within the range of values accepted as safe for aquatic life and domestic water supply.

The few number of taxa recorded and absence of same taxa of plankton could have been the result of poor nutrients concentration. Also the diversity of the benthos was according to their position in the tropic gradient, as most benthos depend on allochtonous leaf litter as important source of food.

Owena reservoir supports a commercial fishery of about fifteen fishermen with about fifteen species of fish caught daily with the aid of traps set and cast nets.

Some of these include *Mormyrus* sp, *Mormyrops* sp, *Hepsetus odoe, Alestes* sp, *Labeo* sp, *Tilapia* sp, *Sarotherodon* sp, *Chana obscura* and *Hemichromis fasciatus*.

As in lakes Kariba and Volta the drowned trees have become an extensive substrate for the growth of algae and large population of insects and molluses, therefore most of the fish species are insect and mollusc feeders.

Also the drowned trees constituted obstruction for the use of drag and set nets. So the fishermen use various types of traps.

There is need for effective management of the reservoir for fish production.

REFERENCES

Environmental Protection Agency (1976) Quality Criteria for Water by United States, E.P.A.Office of Water planning and Standards Washington D.C. 20460.

Ita, E.O.; E.K. Sado, J.K. Balogun, A. Pandogari and B. Ibitoye (1985). Inventory Survey of Nigeria Inland Waters and Their Fishery Resources: 1. A preliminary checklist of inland water bodies in Nigeria with special reference to ponds, lakes, reservoirs and major rivers. *Kainji Lake Research Institute Technical Report Series,* No.14. 51pp

Oke, 0.0. (1990) Limnology and Macrobenthos of Owena Reservoir M.Phil Thesis - University of Ibadan Ibadan.

Oke, O.O. (In Progress) Plankton Diversity, Abundance and productivity in Owena Reservoir, Ondo State. Ph.D. Thesis.

Visser, S.A. (1974) Composition of Waters Lakes and rivers of East and West Africa. *The African journal of tropical hydrobiology and fisheries Vol. 3 (1) 1974* 43 - 60.